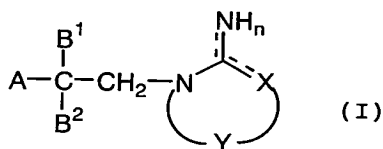


Sub  
AS~~ABSTRACT~~

There is provided heterocyclic compounds of the following formula (I):



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in which,

A is optionally substituted alkyl group, optionally substituted aryl group or optionally substituted heterocyclic group;

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$\text{B}^1$  and  $\text{B}^2$  are, hydrogen atom, alkyl group or hydroxyl group; or combined together to represent carbonyl group;

X is oxygen atom, sulfur atom, carbon atom or nitrogen atom;

dotted line shows either presence or absence of bond;

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n is integer of 1 or 2; and

the group -X-Y- represents optionally substituted alkylene or cyclic alkenylene bond;

or a pharmaceutically acceptable salt thereof.

These compounds have good affinity for  $\alpha_4\beta_2$  nicotinic acetylcholine receptors and activate the same to thereby exert a preventive or therapeutic effect on cerebral dysfunction.

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